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Explor. Sanctuaries

OBSERVATIONS ON MARINE LIFE AT TORTUGAS, FLORIDA

By

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Through the kindness of the Carnegie Institution of Washington I was again enabled to participate in the further study of the marine fauna of the Tortugas region. Carcinologically at least the past season seems to have surpassed the very successful operations of last year. As the result of further trawling and somewhat deeper hauls, the Institution and its yacht have won the double distinction of having brought to light not only the largest, but the smallest known specimen, as well, of that giant among isopod crustaceans, Bathynomus giganteus Milne Edwards. This largest specimen is indeed of imposing proportions. It is a male and measures, over all, full fourteen inches, thus surpassing the length of the largest specimen hitherto known by more than three inches. Its greatest width is six and five-eighths inches. The smallest specimen is scarcely more than one and seven-eights inches long, and a little more than seven-eighths inches wide.

Of no less interest is the capture by the Dohrn of an egg bearing female of B. giganteus, and likewise the largest of its kind in this condition, being nine and one-fourth inches long and three and seven-eighths inches wide. Within its brood pouch were found thirty-two pale yellow eggs, each about half an inch in diameter.

Bathynomus giganteus, as is well known, has been found in the Gulf of Mexico, in the Bahamas, and the Indian Ocean. Other species of Tortugas crustaceans reveal similar affinities, such as the new species of swimming crab, Benthocascon, the second known species of which was taken last ~~year~~ at Tortugas last year. The only other species, the type of the genus, B. hemingi, is an inhabitant of the Indian Ocean. Ten specimens of the Tortugas species of Benthocascon were taken this year between 200 and 253 fathoms. A new species of Pasiphaea, the first shrimp of this genus ever

to have been taken in the Gulf of Mexico and the adjacent Caribbean, were also secured. It has been named Pasiphaea merriami, for the President of the Carnegie Institution. One of the two species to which it seems most nearly related occurs in Hawaii and the other in the Indian Ocean.

The bathymetric and geographic ranges of a number of more or less well known east coast crustacea were extended as a result of the Iohrn's work:

Nephropsis aculeata Smith was taken for the first time in the Gulf of Mexico, 153 to 300 fathoms.

Eusicyonia brevirostris (Stimpson) was taken in sixth fathoms, eleven fathoms deeper than heretofore, while Bathyplax typla appeared in 200 fathoms, the least depth for this species hitherto was 280 fathoms.

A period of approximately eight weeks was spent at the station, June 17 to August 17, and some twenty hauls with the otter trawl were made during this period. In an endeavor to establish the habitat of certain boring crustaceans which we have only obtained from fish stomachs, an orange peel bucket was used over the slopes of White Shoal, over which it was supposed the fish examined had been foraging. Though burrowing crustaceans were taken, the species sought was not obtained in the course of nine dips with the bucket.

Some time was devoted to an attempt to visually record some of the activities of the local fish population. The station is splendidly equipped for under water observations, and Dr. William H. Longley, the executive officer in charge, through his great familiarity with the habitat, distribution, and behavior of the Tortugas fishes, the result of many years of painstaking study, made possible the several very successful "shots" that were accomplished.

Camera hunting of big game is a well recognized and often hazardous sport. None the less fascinating is the tracking down of fish in their native haunts with similar gear. Strange to say hunting under water seems attended with less danger than hunting wild animals on land, in spite of the fact that one beneath the surface must go about forever hooded, and dependent upon a pumped supply of air. Even the one dangerous fish in those waters was all curiosity, at the helmeted figure from which a constant stream of bubbles were arising that was working over a movie camera in a water tight brass box. Due to the wariness of this fish, I did not succeed in getting a movie of it. On the two occasions that I caught the barracuda watching me I did not notice that it was near by until, on one occasion, the camera had been sent above, and on the other that the film had been used up and the camera needed reloading.

Among my more successful "takes" were several short ones of the little retiring fish Gnathypops that lives in a burrow it constructs in sandy bottom in weters of moderate depths. This fish was filmed not only at cleaning house, which he does by bringing up from inside the burrow a mouthful of sand and then puffing it out at some little distance from his burrow, but also defending his domicile against fish that he thinks pass too near his doorway. It was by rare good fortune that we were able to record these two very interesting bits of action within the compass of a few seconds on the same bit of film. Though definite conclusions may not be drawn from observations made as the moving pictures were being taken, it would appear that Gnathypops, while cleaning house, is most shy and wary, never venturing very far from hoje with his load of sand, and vigorously resenting the near approach of other fish to his burrow entrance.

These actions were photographed in the afternoon, at which time the fish appeared quite camera shy and lurked for so long a time in his burrow after the camera was set up that it seemed as though no picture would be possible. Only after a very tiresome interval did he reappear and go about his business as usual. On the other hand, when his locale was revisited the succeeding forenoon, he was found floating about in the water above and in the general vicinity of his burrow feeding, which consisted of picking to me invisible particles or organisms out of the water as the tidal currents carried them by. So engrossed did he seem in the pursuit of what must have been son particularly choice morsels that occasionally he ventured considerable distances from his home, well beyond the focussed camera's field, nor did our presence or that of the camera seem to disturb him. Indeed, thinking that it would add to the interest of the action, I tried to frighten him into his hole with little avail. He just wouldn't interrupt his meal for anybody.

Xyrichthys, the so-called razor fish, was also taken at feeding, during which he vigorously pokes his nose in and among the coral fragments forming the bottom which he frequents, and at repairing the hedge of larger coral fragments he constructs about his retreat in such bottoms. If one disturbs such a hedge by upsetting one or more pieces of coral so that they will fall in the space within the hedge, the fish will quickly swim up, grasp the disturbed piece of coral, be it almost as large as his head, and with a few flirts of his tail lift it back in place on his "hedge."

Most regrettably, movie films are not well adapted for the reproducing of enlarged stills, so I am unable to present here views of foregoing episodes.

I wish again to express my gratitude to the Carnegie Institution and to Dr. Longley in particular for his most helpful assistance in the making possible these movies. But for his aid, it is doubtful if they could have been accomplished.